

[Title of the Document] ABSTRACT

An intake air amount control system for an internal combustion engine, which is capable of ensuring high robustness and improving controllability in intake air amount control, to thereby improve drivability and reduce exhaust emissions. A control system 1 of an internal combustion engine 3, which variably controls the amount of intake air drawn into cylinders #1 to #4 as desired via a variable intake valve actuation assembly 40 includes an ECU 2. The ECU 2 calculates a cylinder intake air amount G_{cyl} and a target intake air amount G_{cyl_cmd} (step 16), identifies, based on a controlled object model [equation (2)], a vector θ_s of all model parameters of the controlled object model with an identification algorithm [equations (8) to (13)], calculates a target auxiliary intake cam phase θ_{msi_cmd} based on the vector θ_s with a sliding mode control algorithm [equations (15) to (21)] (step 80), and controls the variable intake valve actuation assembly 40 according to the target auxiliary intake cam phase θ_{msi_cmd} .